Air Quality Permitting
Technical Memorandum

February 20, 2003

TIER II Operating Permit and Permit to Construct
No. 055-00004

IDAHO VENEER COMPANY, INC.
POST FALLS, IDAHO

3
Project No. P-9502-0~~5~~2-1

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FINAL PERMIT

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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society of Testing and Materials
BACT	Best Available Control Technology
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EF	emission factor
EPA	United States Environmental Protection Agency
EQ	Environmental Quality Management, Inc.
gr	grain (1 lb = 7,000 grains)
HAPs	Hazardous Air Pollutants
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
MACT	Maximum Available Control Technology
MMbf	million board feet
MMsf	million square feet
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O_3	ozone
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter of 10 micrometers or less
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
SCC	Source Classification Code
scf	standard cubic feet
SIC	Standard Industrial Classification Code
SIP	State Implementation Plan
SM	synthetic Minor
SO_2	sulfur Dioxide
TSP	total suspended particulates
T/yr	tons per year
µm	Micrometers
UTM	Universal Transverse Mercator
VOC	volatile organic compound

PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Sections 400 through 470, *Rules for the Control of Air Pollution in Idaho* for Tier II Operating Permits and Sections 200 through 228 for Permits to Construct.

PROJECT DESCRIPTION

Idaho Veneer Company, Inc. (Idaho Veneer) located in Post Falls, Idaho has requested to become a synthetic minor source and thus become exempt from Tier I permitting under IDAPA 58.01.01.300.

Table 1.1 REGULATED EMISSION SOURCES

Permit Section	Source Description	Emission Controls
3	Wellons wood/bark-fired fuel cell boiler, rated at 40,000 lb/hr steam, installed 1976 Standby Boiler, gas-fired, Cleaver Brooks rated at 13.2 x 10^6 Btu/hr installed 1971 Thermopak gas-fired boiler rated at 0.6 x 10^6 Btu/hr	Multiclone None None
4	Wellons Drying Kiln #1 and Coe Drying Kiln #2 rated at 1370 bd ft/hr each Steam Chambers 2, 3, 4, 5, 6, and 7, rated at 1,090 bd ft/hr total Cremona Veneer Dryer rated at 10,100 ft^2/hr (3/8" veneer) James Dryer #1 rated at 800 ft^2 /hr (3/8" veneer)	None None None None
5	Hog Fuel Cyclone (P-21) Planer Cyclones #1 and #2 (P-38 and P-55) Sawdust Cyclone (P-39) Jointer Cyclone (P-13) Resaw Cyclone (P-14) Hog Cyclone (P-16) Sawmill Chip Cyclone (P-17) Veneer Chip Cyclone (P-54) Scragg Chipper Cyclone (P-19)	None

FACILITY DESCRIPTION

Idaho Veneer is located in Post Falls, Idaho and produces veneer and dimension lumber. The major emission sources are a wood/bark-fired (hog fuel) boiler, which produces steam to heat the steam chambers, drying kilns, and veneer dryers; a standby gas-fired boiler to heat the Cremona veneer dryer; two lumber drying kilns; four cyclones controlling the planer and transfer of sawdust and hog fuel; wood byproduct storage and loadout; and two veneer dryers.

Logs are first debarked in one of two debarkers. Large veneer is produced by conditioning the wood in steam chambers, turning the logs on a lathe, and drying the veneer in a Cremona dryer. Smaller veneer is produced by squaring the logs (called cants) with a Scragg saw, conditioning the cants in steam chambers, processing through one of four slicers, and drying in a Cremona dryer (a small James dryer is used as backup).

Dimensional lumber goes through various sawing and trimming operations, then is dried in one of two steam-heated dryers, planed to final dimension, trimmed to length, and shipped out via truck.

Much of the wood-waste from the debarkers, saws, trimmers, chippers and planer is transported to the fuel silo and burned in a 40,000 lb/hr (steam) hog fuel cell boiler.

SUMMARY OF EVENTS

March 1, 2002	DEQ received a request dated February 28, 2002 from Idaho Veneer to become a synthetic minor source. Idaho Veneer had previously submitted a Tier I permit application in February 1995, but a Tier I permit was never issued.
April 19, 2002	DEQ received a facility-wide modeling analysis.
April 30, 2002	DEQ deemed the application complete.
September 20, 2002	DEQ issued a draft permit for facility review.
October 22, 2002	DEQ received comments on the facility draft permit.
November 8, 2002	DEQ issued a proposed permit for public comment.
December 16, 2002	The public comment period closed. Comments were received during the comment period and responses have been prepared.

PERMIT HISTORY

The following is a summary of the permit files available to Environmental Quality.

December 24, 1993	A PTC was issued for the installation of the Cremona veneer dryer, which was revised and reissued on June 11, 1998.
February 13, 1998	A PTC was issued for the lumber drying kilns.

DISCUSSION

1. Emissions Estimates

The potential emissions as calculated by EQM using the latest EPA and DEQ emission factors and throughput limits requested by the applicant are presented in Appendix A. Note that the PM and PM_{10} lb/hr permit limits for the Wellons boiler are lower than the emissions calculated by EQM and are based on the emissions submitted by the applicant (see Response to Comments, Comment 2).

The potential emissions for the process sources (e.g., the drying kilns and cyclones) were calculated using the emission factors in a June 30, 1997 memo by Val Bohdan, DEQ Technical Engineer, setting forth DEQ's policy on emission factors for the Idaho wood industry. As presented in Attachment B to the Bohdan memo, PM and PM_{10} emissions from cyclones handling mill mix sawdust were calculated using grain loading and air flow. Emissions from cyclones handing chips and hogged shavings were based on material throughput expressed in bone dry tons.

2. Modeling

The ISCST3 modeling submitted by the applicant was rerun to include recalculated emissions from the hog fuel boiler and cyclones and revised modeling assumptions. A report on the dispersion modeling analysis is presented in Appendix B. The emissions from the Wellons boiler used in the modeling analysis were based on a conservative assumption that all the PM is PM_{10}. Because the NAAQS are attained under this assumption, the permit limits are the same for PM and PM_{10} for this source. Thus, no separate source test for PM_{10} is necessary, as requested by the applicant.

3. Area Classification

Idaho Veneer is located in Post Falls, Koonenai County, which is in AQCR 62. Kootenai County is classified as attainment or unclassifiable for all state and federal criteria air pollutants.

4. Facility Classification

The facility is not a major facility as defined in IDAPA 58.01.01.006.55 or 008.10. It is not a designated facility as defined in IDAPA 58.01.01.006.27. The facility is not subject to New Source Performance Standards, in accordance with 40 CFR, Part 60; National Emission Standards for Hazardous Air Pollutants, in accordance with 40 CFR, Part 61; or National Emission Standards for Hazardous Air Pollutants for Source Categories (MACT), in accordance with 40 CFR, Part 63. The Standard industrial Classification defining the facility is 2436. The facility is classified as a SM source because actual and potential emissions of regulated air pollutants are less than 100 T/yr only if it complies with the federally-enforceable emission limits in the permit.

5. Regulatory Review

This permit is subject to the following permitting requirements:

a.	IDAPA 58.01.01.401	Tier II Operating Permit
b.	IDAPA 58.01.01.403	Permit Requirements for Tier II Sources
c.	IDAPA 58.01.01.404.01(c)	Opportunity for Public Comment
d.	IDAPA 58.01.01.404.04	Authority to Revise or Renew Operating Permits
e.	IDAPA 58.01.01.406	Obligation to Comply
f.	IDAPA 58.01.01.470	Permit Application Fees for Tier II Permits
g.	IDAPA 58.01.01.625	Visible Emission Limitation
h.	IDAPA 58.01.01.650	General Rules for the Control of Fugitive Dust
i.	IDAPA 58.01.01.200 et seq.	Requirements for Permits to Construct

6. Permit Conditions

The permit includes emission and throughput limits based on requested limits by the applicant. As discussed in the response to comments, the emission rate limits for the Wellons boiler were calculated by the applicant and used in their modeling analysis (which is lower than calculated by EQ) were included as the permit limits for this source. The steaming rate of the hog fuel boiler has been removed based on revised source testing requirements. Wood throughput limits remain unchanged.

Compliance with the Wellons hog fuel boiler opacity and grain loading will be determined by performance testing. No source tests were required to demonstrate compliance with the CO and NO_x emission limits because the ambient concentrations from the boiler are small (4.9% of the NAAQS for CO and 35% of the NAAQS for NO_2, excluding background) and the emissions are 55.3% and 20.3%, respectively, of the major source threshold of 100 T/yr. Compliance with the NO_x and CO emission limits will be ensured by complying with the fuel consumption limit requested by the applicant. Continual compliance with the opacity limit will be determined by periodic (monthly or quarterly) visible emission observations (Method 22 followed by repairs and/or a 6-minute Method 9 test).

Emission limits for the gas-fired boilers were set for PM_{10} and NO_x. Compliance will be ensured by compliance with the natural gas throughput limit. No visible emission observations were required for the gas boilers because of the very low probability of exceeding the opacity limit of 20%. Annual emission limits from the drying kilns, steam chambers, and veneer dryers were set for PM_{10}, and VOC (short-term limits are not practically enforceable); compliance will be ensured by complying with the dimensional lumber and veneer throughput limits established as set forth in the application.

Compliance with PM_{10} emissions and opacity limits for the cyclones will be ensured by complying with the dimensional lumber throughput limit and by periodic visible emission observations as described above for the Wellons boiler.

7. AIRS

AIRS/AFS FACILITY-WIDE CLASSIFICATION[a] DATA ENTRY FORM

AIR PROGRAM / POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION A – Attainment U – Unclassifiable N – Nonattainment
SO_2	B						A
NO_x	B						U
CO	SM					SM	U
PM_{10}	SM					SM	U
PT (Particulate)	SM					NA	A
VOC	B						U
THAP (Total HAPs)	NA						NA
			APPLICABLE SUBPART				

a AIRS/AFS Classification Codes:
A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class "A" is applied to each pollutant which is below the 10 ton-per-year (T/yr) threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.
SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
B = Actual and potential emissions below all applicable major source thresholds.
C = Class is unknown.
ND = Major source thresholds are not defined (e.g., radionuclides).

FEES

The facility has paid the applicable Tier I registration fees in accordance with 58.01.01.387. The facility has requested a synthetic minor Tier II permit and is therefore exempt from Tier II processing fees in accordance with IDAPA 58.01.01.407.02.d.

RECOMMENDATIONS

Based on the review of the application materials, and all applicable state and federal regulations, staff recommends that DEQ issue a final Tier II operating permit and permit to construct to Idaho Veneer. An opportunity for public comment on the air quality aspects of the proposed permit was provided in accordance with IDAPA 58.01.01.404.01.c.

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cc: Tom Harman, Coeur d'Alene Regional Office

APPENDIX A

EMISSION ESTIMATES FOR NON-FUGITIVE SOURCES AT IDAHO VENEER

BOILER EMISSIONS

Rated Capacity: 40,000 lb steam (permit for 40,000 lb steam)

B-1 Wellon's Boiler

Pollutant	Emission Factor	EF Units	24 Hour Maximum	Units	Requested Permit Throughput	Units (annual)	Maximum Emissions (lb/hr)	Emissions (tons/yr)
PM/PM10 (multiclone)	0.35	lb/mmbtu	42.7	mmbtu/hr	184,400	mmbtu/yr	14.9	32.3
SO2	0.025	lb/mmbtu	42.7	mmbtu/hr	184,400	mmbtu/yr	1.1	2.3
CO	0.6	lb/mmbtu	42.7	mmbtu/hr	184,400	mmbtu/yr	25.6	55.3
NOx	0.22	lb/mmbtu	42.7	mmbtu/hr	184,400	mmbtu/yr	9.4	20.3
VOC	0.013	lb/mmbtu	42.7	mmbtu/hr	184,400	mmbtu/yr	0.6	1.2

Annual Btu = (4853 Btu/lb)(2000 lb/ton)(19.000 ton/yr) = 184,400 MMBtu/yr

PM10=PM (conservative assmption for modeling and testing simplification)

3500 acfm 270 F Capacity: 13,800 lbs steam (400 HP)

B-2 Standby Gas Boiler

Pollutant	Emission Factor	EF Units	2000 Throughput (10^6 cu ft)	Permit Throughput (1)		Emissions (lb/hr)	Permit Emissions (tons/yr)
PM/PM10***	13.7	lbs/10^6 cu ft	34	300		1.2	2.1
SO 2*	0.6	lbs/10^6 cu ft	34	300		0.1	0.1
CO *	35	lbs/10^6 cu ft	34	300		3.1	5.3
NOx *	140	lbs/10^6 cu ft	34	300		12.5	21.0
VOC **	5.8	lbs/10^6 cu ft	34	300		0.5	0.9

* Using AP 42 Table 1.4-2 small industrial burners - assuming no low NOx burners and no flue gas reinjection

** Using AP 42 Table 1.4-3 small industrial burners

*** Using AP 42 Table 1.4-1 small industrial burners filterable plus condensible (6.2+7.5)

Operating hours = 3360 hrs/yr

300 acfm 250 F Rated Capacity: .6 MBTU/hr

B-3 Thermo Pack

Pollutant	Emission Factor	EF Units	2001 Throughput (10^6 cu ft)	Permit Throughput (1)		Emissions (lb/hr)	Emissions (tons/yr)
PM/PM10 ***	13.7	lbs/10^6 cu ft	15	50		0.19	0.34
SO 2*	0.6	lbs/10^6 cu ft	15	50		0.01	0.02
CO *	35	lbs/10^6 cu ft	15	50		0.48	0.88
NOx *	140	lbs/10^6 cu ft	15	50		1.92	3.50
VOC **	5.8	lbs/10^6 cu ft	15	50		0.08	0.15

* Using AP 42 Table 1.4-2 small industrial burners - assuming no low NOx burners and no flue gas reinjection

** Using AP 42 Table 1.4-3 small industrial burners

*** Using AP 42 Table 1.4-1 small industrial burners filterable plus condensible (6.2+7.5)

Operating hours = 3641 hrs/yr

TOTALS

Pollutant	Emissions (tons/yr)	Emissions (lb/hr)
Particulate	34.7	16.4
PM10	#REF!	#REF!
SO 2	2.4	1.1
CO	61.4	29.2
NOx	44.8	23.8
VOC	2.2	1.2

APPENDIX B

MODELING OF IDAHO VENEER COMPANY EMISSIONS

REPORT ON MODELING ANALYSIS FOR IDAHO VENEER COMPANY (IVC)

1. SUMMARY:

The pollutants identified in this Synthetic Minor Tier II application that are subject to the requirements of modeling were oxides of nitrogen (NO_x), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 μm (PM_{10}), sulfur dioxide (SO_2), and carbon monoxide (CO). The modeling analysis of criteria pollutants for all non-fugitive sources at the facility demonstrated compliance with the National Ambient Air Quality Standards (NAAQS) for all applicable averaging periods.

2. DISCUSSION:

2.1 Applicable Air Quality Impact Limits

This facility is located in Post Falls, Idaho which is designated an attainment or unclassifiable area for PM_{10}, CO, SO_2, and NO_x. As part of this Tier II application, the dispersion modeling analysis compared facility impacts (including background concentrations) to the NAAQS. Table 1 lists the applicable NAAQS.

Table 1. Applicable regulatory limits

POLLUTANT	Averaging Period	Significant Contribution Levels (μg/m³)[1, 2]	Regulatory Limit (μg/m³)[3]
PM_{10}[4]	Annual	1	50
	24-hour	5	150
SO_2[5]	3-hour	25	1,300
	24-hour	5	365
	Annual	1.0	80
CO[6]	8-hour	500	10,000
	1-hour	2000	40,000
NO_x[7]	Annual	1	100

1. IDAPA 58.01.01.006.93
2. Micrograms per cubic meter
3. IDAPA 58.01.01.577 for criteria pollutants
4. Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers
5. Sulfur dioxide
6. Carbon monoxide
7. Oxides of nitrogen

2.2 Background Concentrations

When conducting NAAQS modeling for non-PSD sources (i.e., IVC), sources not explicitly included in the model are taken into account by adding a background concentration. DEQ provided the ambient air pollutants for the Post Falls area that were used in the calculation of the total NAAQS concentration. Table 2 lists background concentrations provided by DEQ.

Table 2. Ambient Air Background Concentrations

POLLUTANT	Averaging Period	Background Concentration ($\mu g/m^3$)
PM_{10}	Annual	24
	24-hour	67
SO_2	3-hour	42
	24-hour	26
	Annual	8
CO	8-hour	3,400
	1-hour	10,200
NO_2	Annual	32

Source: DEQ - 1/2703

2.3 Modeling Impact Assessment

The procedures in the State of Idaho's *Air Quality Modeling Guideline* (DEQ 2002), as well as the EPA documents *Guideline on Air Quality Models* (EPA 2001) were followed in conducting the modeling analysis.

The Industrial Source Complex Model (ISC), including the **P**lume **RI**se **M**odel **E**nhancements Model (PRIME), version 99020, was used in the compliance evaluation. All regulatory default options were used in the modeling. The area surrounding the facility within 3 kilometers is rural in nature as rural mixing heights were used in the model.

The remainder of the modeling analysis describes the emission rates, source parameters, building downwash parameters, ambient air boundary, receptor network, elevation data, meteorological data, and compliance evaluation.

The short-term and annual emissions limits in the permit were used in the modeling of IVC Permitting Project and are shown in Table 3. The stack information and area-source parameters for each source are presented in Tables 4 and 5.

The lumber drying kilns have multiple vents that exhaust steam on each kiln. Rather than modeling each vent individually, the ISCST3 Model User's Manual suggests treating such a collection of rooftop sources as an area source. On all of the dry kilns, depending on fan rotation, one side of the roof vents will be fresh air intakes while the roof vents on the opposite side will be the exhausts. About every three hours in all drying schedules the fans will stop and change rotation allowing the exhaust vents to vary from side to side. The forced-air exhaust from each partially opened vent exits at 160°F. The range of the roof vent opening depends on the species of wood being dried. The range of the vent openings is anywhere between 3 to 12 inches. Because the exhaust of hot air and gases would generate buoyancy flux under most atmospheric conditions, additional height of release was considered.

Calculations using the SCREEN3 Model were made to estimate the additional release height from the individual kiln vents. This was done using a range of stability classes and ambient temperatures for a typical kiln simulated as a point source. The equivalent diameter of the point source was derived from a row of partially open vents. The estimated exit flow rate was calculated from the total open area times the exit velocity. Measurements of each vent's opening and exit velocity were assumed to be similar to those made at a similar lumber facility (Bennett Lumber 2002).

Using the measurements of exit velocity and vent height from Bennett Lumber, the resulting calculations using SCREEN3 showed that plume height was greatest for low wind speed and stable atmospheric conditions, while an unstable atmosphere with high wind speeds showed the lowest plume heights. As

Table 3. Short- and Long-term Emissions Used in Modeling for Idaho Veneer Company Synthetic Minor Tier II Permitting Project

Emissions Source	Source ID	Type of Emissions	PM_{10}	SO_2	CO	NOx
Wellon's Boiler	B1	Modeled Short-Term Emission Rate (lbs/hr)	9.04	1.1	25.6	9.4
		Annual Emissions (TPY)	32.3	2.3	55.3	20.3
		Modeled Long-term Emission Rate (lbs/hr)	7.37	0.53	12.6	4.6
Stand-by Gas Boiler	B2	Modeled Short-Term Emission Rate (lbs/hr)	1.22	0.05	3.13	12.5
		Annual Emissions (TPY)	2.06	0.09	5.25	21.00
		Modeled Long-term Emission Rate (lbs/hr)	0.47	0.02	1.20	4.79
Thermo Pack	B3	Modeled Short-Term Emission Rate (lbs/hr)	0.19	0.01	0.48	1.92
		Annual Emissions (TPY)	0.34	0.02	0.88	3.50
		Modeled Long-term Emission Rate (lbs/hr)	0.08	0.00	0.20	0.80
Cremona Dryer	P1	Modeled Short-Term Emission Rate (lbs/hr)	2.10			
		Annual Emissions (TPY)	1.25			
		Modeled Long-term Emission Rate (lbs/hr)	0.29			
James Dryer #1	P2	Modeled Short-Term Emission Rate (lbs/hr)	0.2			
		Annual Emissions (TPY)	0.06			
		Modeled Long-term Emission Rate (lbs/hr)	0.01			
Dry Kiln #1(Wellons)	P10	Modeled Short-Term Emission Rate (lbs/hr)	0.21			
		Annual Emissions (TPY)	0.91			
		Modeled Long-term Emission Rate (lbs/hr)	0.21			
Dry Kiln #2 (Coe)	P11	Modeled Short-Term Emission Rate (lbs/hr)	0.21			
		Annual Emissions (TPY)	0.91			
		Modeled Long-term Emission Rate (lbs/hr)	0.21			
Jointer Cyclone	P13	Modeled Short-Term Emission Rate (lbs/hr)	0.83			
		Annual Emissions (TPY)	1.66			
		Modeled Long-term Emission Rate (lbs/hr)	0.38			
Resaw Cyclone	P14	Modeled Short-Term Emission Rate (lbs/hr)	0.16			
		Annual Emissions (TPY)	0.32			
		Modeled Long-term Emission Rate (lbs/hr)	0.07			
Hog Cyclone (overs)	P16	Modeled Short-Term Emission Rate (lbs/hr)	0.02			
		Annual Emissions (TPY)	0.06			
		Modeled Long-term Emission Rate (lbs/hr)	0.01			
Sawmill Chipr and vnr chip Cycs	P17, P54	Modeled Short-Term Emission Rate (lbs/hr)	0.23			
		Annual Emissions (TPY)	0.60			
		Modeled Long-term Emission Rate (lbs/hr)	0.14			
Scragg Chipper Cyclone	P19	Modeled Short-Term Emission Rate (lbs/hr)	0.13			

Table 3. Short- and Long-term Emissions Used in Modeling for Idaho Veneer Company Synthetic Minor Tier II Permitting Project

Emissions Source	Source ID	Type of Emissions	PM_{10}	SO_2	CO	NOx
		Annual Emissions (TPY)	0.03			
		Modeled Long-term Emission Rate (lbs/hr)	0.01			
Hog Fuel Cyclone	P21	Modeled Short-Term Emission Rate (lbs/hr)	0.14			
		Annual Emissions (TPY)	0.03			
		Modeled Long-term Emission Rate (lbs/hr)	0.01			
Planer Cyclone	P38	Modeled Short-Term Emission Rate (lbs/hr)	3.56			
		Annual Emissions (TPY)	12.81			
		Modeled Long-term Emission Rate (lbs/hr)	2.92			
Sawdust Cyclone	P39	Modeled Short-Term Emission Rate (lbs/hr)	0.55			
		Annual Emissions (TPY)	1.99			
		Modeled Long-term Emission Rate (lbs/hr)	0.45			
Planer Cyclone #2	P55	Modeled Short-Term Emission Rate (lbs/hr)	1.4			
		Annual Emissions (TPY)	5.03			
		Modeled Long-term Emission Rate (lbs/hr)	1.15			
Steam Chamber #5 and 6(vats)	P9, P12	Modeled Short-Term Emission Rate (lbs/hr)	0.01			
		Annual Emissions (TPY)	0.04			
		Modeled Long-term Emission Rate (lbs/hr)	0.01			

Note: Modeled Long-Term Emission Rate calculated by dividing the annual emissions by 8760 hours in a year

Table 4. Stack Parameters Used in the Modeling for Idaho Veneer Company Synthetic Minor Tier II Permitting Project

Source ID	Coordinates		Base	Stack Egress Parameters			
	UTMx, m	UTMy, m	Elevation, ft	Height, ft	Temp., °F	Flow Rate, Acfm	Diam., ft
B1	504,745	5,283,903	2,168	50.0	300	28,000	3.5
B2	504,654	5,283,898	2,169	29.5	270	3,500	2.0
B3	504,626	5,283,827	2,165	31.0	250	300	0.8
P1	504,606	5,283,848	2,165	50.0	275	15,829	1.7
P2	504,672	5,283,867	2,167	40.0	275	4,522	1.5
P13	504,734	5,283,870	2,165	34.0	72	9,720	2.5
P14	504,719	5,283,868	2,165	15.0	72	3,000	2.0
P16	504,743	5,283,868	2,166	36.0	72	1,920	2.0
P17, 54	504,750	5,283,868	2,166	43.0	72	3,000	2.5
P19	504,752	5,283,919	2,168	15.0	72	1,920	1.7
P21	504,752	5,283,917	2,168	21.0	72	4,250	2.5
P38	504,858	5,283,877	2,182	44.0	72	27,784	2.5
P39	504,761	5,283,902	2,168	90.0	72	4,320	2.0
P55	504,863	5,283,883	2,181	44.0	72	10,909	2.5
P9, 12	504,672	5,283,944	2,170	22.0	160	1,219	1.5

Note: All Stacks emit vertically

Table 5. Area Source Parameters Used in the Modeling for Idaho Veneer Company Synthetic Minor Tier II Permitting Project

Source ID	Coordinates		Base	Release	Easterly	Northerly	Angle from	Vertical
	UTMx, m	UTMy, m	Elevation, ft	Height, ft	Length, ft	Length, ft	North, °	Dimension, Ft
P10KILN	504,852	5,283,803	2163.3	26.2	83.99	34	0.0	0.0
P11KILN	504,852	5,283,820	2164.6	29.2	114.01	24	0.0	0.0

shown in Table 5, the release heights from P10KILN and P11KILN were assumed to be 5.2 feet higher than each kilns physical height. This increase in height was based on typical summer days when high temperatures are typically above 85°F and with moderate winds. Temperatures for the remainder of the year are generally less than 85°F, thus the release height would typically be greater than 5.2 feet. The 5.2 feet increase represents a very nominal increase considering the range from 10's of feet under low wind speed conditions to a few feet under very high wind speeds.

Stack heights, buildings, and other structures were included in the analysis because building downwash of released emissions may influence the plumes (which will tend to bring the plume closer to the ground near the structures). The elevation and location of each building at the facility was used in the U.S. EPA's Building Profile Input Program-PRIME (95086) to calculate the building downwash parameters.

The ambient air boundary for this project is defined as the property line because it meets the definition of the "Ambient Air Boundary" in Chapter 5.5 of the DEQ's guidance document (DEQ

2002). The property is completely fenced on the east, south, west sides of IVC. The northern property line has a fence on half of it, while the other half is patrolled by security guards and contains "No Trespassing" signs every 50 feet. All calculations of dispersion modeling impacts occur along or near the outside of this ambient air boundary.

Because the receptor grid submitted by the applicant met all requirements of the guidance document, it was used in this analysis as well. It incorporated both a coarse receptor grid at 100-meter spacing out to 2 kilometers from IVC and also, a near-field receptor grid at 25-meter spacing along the ambient air boundary and for 50 meters beyond the boundary. A total of 2,563 receptors were used.

The elevations of each receptor were derived from 30m resolution Digital Elevation Model (DEM) 7.5-minute quadrangle maps for the area.

Per discussions with DEQ, the closest applicable meteorological station to the site is in Spokane, Washington. The National Weather Service's (NWS) Spokane International Airport meteorological site collects both surface and upper air data. The most recent 5-year data set was taken from EPA's SCRAM website. This data set also shows a bi-nodal wind pattern; however, winds are primarily out of the southwest, south-southwest, and south 34 percent of the time. The other predominate wind direction is out of the northwest.

IVC is located in an east-west valley that contains the Spokane River. Winds in a valley typically follow the valley orientation due to the channeling of winds caused by the steep terrain. Because no on-site data exist, the meteorological data set used in the modeling was created by adjusting Spokane meteorological data set by aligning the predominate winds to the valley orientation which was a shift in every wind direction by +45 degrees.

3. MODELING RESULTS FOR CRITERIA POLLUTANTS

The results presented in Table 6 show that the ambient air impacts due to this project are below the NAAQS for all pollutants.

Table 6. NAAQS Impact Analysis Summary For Idaho Veneer Company Synthetic Minor Tier II Permitting Project

Pollutant	Averaging Period	Total Ambient Impact, µg/m³	Ambient Background Concentration, µg/m³	Total NAAQS Concentration, µg/m³	NAAQS, µg/m³	Percent of NAAQS, %
CO[a]	1-hour	837	10,200	11,037	40,000	28%
CO[a]	8-hour	494	3,400	3,894	10,000	39%
SO_2[a]	3-hour	27	42	69	1,300	5%
SO_2[a]	24-hour	13	26	39	365	11%
SO_2[c]	Annual	1	8	9	80	11%
PM_{10}[b]	24-hour	66	67	133	150	89%
PM_{10}[c]	Annual	12	24	36	50	71%
NOx[c]	Annual	35	32	67	100	67%

a. Compliance based on high, second-high concentration at each receptor

b. Compliance based on high, sixth-high concentration modeled at each receptor with 5 years of meteorological data

c. Compliance based on maximum concentration at each receptor

4. REFERENCES:

DEQ, 2002. Idaho Department of Environmental Quality, 2002. *State of Idaho Air Quality Modeling Guideline*, Boise, Idaho, May.

EPA, 2001. U.S. EPA, 2001. 40CFR51 – *Requirements for Preparation, Adoption, and Submittal of State Implementation Plans (Guideline on Air Quality Models).*

*** ISC3P - VERSION 99020 ***
*** IVC Tier II Synthetic Minor Permit idvnst.bst MPZ 1/27/03 ***
*** Model Executed on 01/28/03 at 00:29:33 ***

BEE-Line ISC3P "BEEST" Version 8.10

Input File - P:\030000\030192\0320192.0003.002\URS MODELING\IdvnstPM10_87_PM_TEN.DTA
Output File - P:\030000\030192\0320192.0003.002\URS MODELING\IdvnstPM10_87_PM_TEN.LST
Met File - P:\030000\030192\0320192.0003.002\URS MODELING\geg8791.asc

Number of sources - 17
Number of source groups - 7
Number of receptors - 2563

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
B1	0	0.11390E+01	504745.0	5283903.0	660.8	15.24	422.04	14.78	1.07	YES	
B2	0	0.15372E+00	504653.8	5283897.5	661.0	8.99	405.37	5.66	0.61	YES	
B3	0	0.23940E-01	504626.0	5283827.0	659.9	9.45	394.26	2.82	0.24	YES	
P1	0	0.26460E+00	504606.0	5283848.0	659.9	15.24	408.15	36.27	0.52	YES	
P2	0	0.25200E-01	504672.0	5283867.0	660.5	12.19	408.15	13.00	0.46	YES	
P13	0	0.10458E+00	504734.0	5283870.0	660.0	10.36	295.37	10.06	0.76	YES	
P14	0	0.20160E-01	504719.0	5283868.0	660.0	4.57	295.37	4.85	0.61	YES	
P16	0	0.25200E-02	504743.0	5283868.0	660.2	10.97	295.37	3.10	0.61	YES	
P1754	0	0.28980E-01	504750.3	5283867.5	660.3	13.11	295.37	3.10	0.76	YES	
P19	0	0.16380E-01	504752.2	5283918.5	660.8	4.57	295.37	4.47	0.51	YES	
P21	0	0.17640E-01	504752.0	5283917.0	660.8	6.40	295.37	4.40	0.76	YES	
P38	0	0.44856E+00	504858.0	5283877.0	665.0	13.41	295.37	28.74	0.76	YES	
P39	0	0.69300E-01	504761.0	5283901.5	660.8	27.43	295.37	6.98	0.61	YES	
P55	0	0.17640E+00	504863.0	5283883.0	664.8	13.41	295.37	11.29	0.76	YES	
P912	0	0.12600E-02	504671.8	5283944.0	661.4	6.71	344.26	3.51	0.46	YES	

*** AREA SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	COORD (SW CORNER) X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	X-DIM OF AREA (METERS)	Y-DIM OF AREA (METERS)	ORIENT. OF AREA (DEG.)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
P10KILN	0	0.99278E-04	504851.6	5283802.5	659.4	7.99	25.60	10.36	0.00	0.00	
P11KILN	0	0.10352E-03	504852.4	5283819.5	659.8	8.90	34.75	7.32	0.00	0.00	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	B1 , B2 , B3 , P1 , P2 , P10KILN , P11KILN , P13 , P14 , P16 , P1754 , P19 , P21 , P38 , P39 , P55 , P912 ,
B1	B1 ,
B2	B2 ,
B3	B3 ,
P10KILN	P10KILN ,
P11KILN	P11KILN ,
P1	P1 ,

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF PM_TEN IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH	1ST HIGH VALUE IS	90.36160c	ON 89040924:	AT (504583.69, 5283956.00, 662.00, 0.00)	DC	NA
	HIGH	2ND HIGH VALUE IS	75.33968c	ON 91090924:	AT (504493.00, 5283810.50, 662.90, 0.00)	DC	NA

Fees A

	HIGH	6TH HIGH VALUE IS	65.78992	ON 91110124:	AT (	504540.69,	5283907.00,	662.00,	0.00)	DC	NA
B1	HIGH	1ST HIGH VALUE IS	56.34883c	ON 89040924:	AT (	504630.81,	5283962.00,	662.00,	0.00)	DC	NA
	HIGH	2ND HIGH VALUE IS	45.02248c	ON 89042624:	AT (	504653.69,	5283962.00,	662.00,	0.00)	DC	NA
	HIGH	6TH HIGH VALUE IS	38.74083	ON 90053124:	AT (	504874.31,	5283963.50,	664.00,	0.00)	DC	NA
B2	HIGH	1ST HIGH VALUE IS	30.01613	ON 90021524:	AT (	504630.81,	5283962.00,	662.00,	0.00)	DC	NA
	HIGH	2ND HIGH VALUE IS	26.74027c	ON 90110524:	AT (	504668.00,	5283785.50,	661.80,	0.00)	DC	NA
	HIGH	6TH HIGH VALUE IS	23.56650	ON 90051624:	AT (	504583.69,	5283956.00,	662.00,	0.00)	DC	NA
B3	HIGH	1ST HIGH VALUE IS	11.45041	ON 88013124:	AT (	504591.09,	5283785.50,	662.00,	0.00)	DC	NA
	HIGH	2ND HIGH VALUE IS	10.02184	ON 87121724:	AT (	504591.09,	5283785.50,	662.00,	0.00)	DC	NA
	HIGH	6TH HIGH VALUE IS	8.80958	ON 90052824:	AT (	504591.09,	5283785.50,	662.00,	0.00)	DC	NA
P10KILN	HIGH	1ST HIGH VALUE IS	9.01142c	ON 87122524:	AT (	504757.09,	5283785.50,	659.90,	0.00)	DC	NA
	HIGH	2ND HIGH VALUE IS	8.63512c	ON 91122324:	AT (	504757.09,	5283785.50,	659.90,	0.00)	DC	NA
	HIGH	6TH HIGH VALUE IS	6.15132c	ON 87010824:	AT (	504718.00,	5283785.50,	660.20,	0.00)	DC	NA
P11KILN	HIGH	1ST HIGH VALUE IS	7.62153c	ON 87122524:	AT (	504718.00,	5283785.50,	660.20,	0.00)	DC	NA
	HIGH	2ND HIGH VALUE IS	7.53320c	ON 91122324:	AT (	504735.59,	5283785.50,	660.10,	0.00)	DC	NA
	HIGH	6TH HIGH VALUE IS	4.39812c	ON 90123024:	AT (	504718.00,	5283785.50,	660.20,	0.00)	DC	NA
P1	HIGH	1ST HIGH VALUE IS	21.47056	ON 90012324:	AT (	504735.59,	5283785.50,	660.10,	0.00)	DC	NA
	HIGH	2ND HIGH VALUE IS	15.86276	ON 88121324:	AT (	504743.00,	5283785.50,	660.10,	0.00)	DC	NA
	HIGH	6TH HIGH VALUE IS	13.77788	ON 90100224:	AT (	504735.59,	5283785.50,	660.10,	0.00)	DC	NA